What is claimed is:

1. A method of detecting an object comprising the steps of:

capturing a binary image of the object;

determining a projection of the binary image to a first axis;

determining a difference between a profile of a target object to the first axis and the projection at a plurality of positions along the first axis; and

detecting the object by determining if the difference between the profile and the projection is less than a threshold at one of the plurality of positions.

2. The method of claim 1, further comprising the step of determining a projection of the binary image to a second axis prior to determining the position and orientation.

3. The method of claim 2, further comprising the steps of:

determining a difference between a profile of the target object to the second axis and the projection of the image to the second axis at a plurality of positions along the second axis, wherein the

differences are limited to the position determined along the first axis to have the difference below the threshold; and

detecting the object by determining if difference between the profile to the second axis and the projection to the second is less than a threshold at one of the plurality of positions.

4. The method of claim 3, further comprising the step of determining a pixel-by-pixel difference between a binary image of the target object used to determine the profile and the binary image of the object limited to the positions having the differences below the threshold along the first and second axes.

5. The method of claim 1, further comprising the step of determining a pixel-by-pixel difference between a binary image of the target object used to determine the profiles and the binary image of the object limited to the position having the difference below the threshold.

6. The method of claim 1, wherein the image includes a plurality of objects.

7. The method of claims 1, wherein the method is performed for multiple target objects, each target object corresponding to at least one profile.

8. The method of claim 1, wherein each profile includes a corresponding orientation of the target object which is defined as the orientation of the object in the image upon detecting the object.

9. A method of detecting an object comprising the steps of:

illuminating the object from behind as viewed by a camera;

capturing an image of the backlight object using the camera;

determining a projection to a first axis;

determining a projection to a second axis;

determining a difference between a profile of a target object to the first axis and the projection to the first axis at a plurality of positions along the first axis;

detecting the object by determining if the difference between the profile to the first axis and the projection to the first axis is less than a threshold at one of the plurality of positions;

determining a difference between a profile of the target object to the second axis and the projection of the image to the second axis at a plurality of positions along the second axis, wherein the differences are limited to the position determined along the first axis to have the difference below the threshold; and

detecting the object by determining if the difference between the profile to the second axis and the projection to the second axis is less than a threshold at one of the plurality of positions.

10. The method of claim 9, wherein the first axis corresponds to the width of the object.

11. The method of claim 9, wherein the second axis corresponds to the height of the object.

12. The method of claim 9, wherein each profile includes a corresponding orientation of the target object which is defined as the orientation of the object in the image upon detecting the object.

13. The method of claim 9, wherein the object is determined according to the equation:

$$M_{\phi}(j) = (\sum_{i}(\text{abs}(I(i+j) - P_{\phi}(i))))/ A_{\phi}$$

where $M_{\phi}(j)$ is a normalized measure of dissimilarity for a position j, $P_{\phi}(i)$ is a trained image value, $I(I+j)$ is a projection value for the first axis, and A_{ϕ} is the area under the training object.

14. A program storage device readable by machine, tangibly embodying a program of instructions executable by the machine to perform method steps for detecting an object, the method steps comprising:

capturing a binary image of the object;

determining a projection of the binary image to a first axis;

determining a difference between a profile of a target object to the first axis and the projection at a plurality of positions along the first axis; and

detecting the object by determining if the difference between the profile and the projection is less than a threshold at one of the plurality of positions.

15. The method of claim 14, further comprising the step of determining a projection of the binary image to a second axis prior to determining the position and orientation.

16. The method of claim 15, further comprising the steps of:

determining a difference between a profile of the target object to the second axis and the projection of the image to the second axis at a plurality of positions along the second axis, wherein the differences are limited to the position determined along the first axis to have the difference below the threshold; and

detecting the object upon determining the difference between the profile to the second axis and the projection to the second axis is less than a threshold at one of the plurality of positions.

17. The method of claim 16, further comprising the step of determining a pixel-by-pixel difference between a binary image of the target object used to determine the profile and the binary image of the object limited to the positions having the differences below the threshold along the first and second axes.

18. The method of claim 14, further comprising the step of determining a pixel-by-pixel difference between a binary image of the target object used to determine

the profiles and the binary image of the object limited to the position having the difference below the threshold.

19. The method of claim 14, wherein the image includes a plurality of objects.

20. The method of claims 14, wherein the method is performed for multiple target objects, each target object corresponding to at least one profile.

21. The method of claim 14, wherein each profile includes a corresponding orientation of the target object which is defined as the orientation of the object in the image upon detecting the object.